

RESOURCE LIBRARY | ACTIVITY : 50 MINS

Presenting a Decision About Building an Oil Pipeline through British Columbia

Students will apply knowledge they learned from the lesson in a decision statement about the construction of the oil pipeline through British Columbia. Their final decision will consider land use planning, ocean planning, and consideration of the First Nations values.

GRADES

9 - 12

SUBJECTS

Biology, Geography, Human Geography

CONTENTS

3 PDFs

OVERVIEW

Students will apply knowledge they learned from the lesson in a decision statement about the construction of the oil pipeline through British Columbia. Their final decision will consider land use planning, ocean planning, and consideration of the First Nations values.

For the complete activity with media resources, visit:

<http://www.nationalgeographic.org/activity/presenting-decision-about-building-oil-pipeline-through-british-columbia/>

DIRECTIONS

1. Have students discuss what they learned in Activities 1 and 2.

Set the stage by reviewing the sequence of activities within this lesson. Remind students that at the beginning of this lesson, they explored a decision through one stakeholder's viewpoint. They then learned more about the area both geographically and politically while analyzing each stakeholder's influence and connection to the decision. Finally, they identified cultural, economic, social, and environmental consequences of the decision to build an oil pipeline and associated marine terminals in British Columbia. In this activity, they will pull together what they have learned in the previous activities to complete the analysis of the decision about building the Enbridge Northern Gateway Oil Pipeline in British Columbia. Place students in small groups of three, and assist them through the following process as a group. Each group of three will hand in a decision statement at the end of this lesson.

2. Have students revisit the information gathered on the influence of stakeholders.

Ask students to have available their Stakeholder Table from Activity 1. Distribute one copy of the Decision Statement worksheet to each group and have students complete Part 1: Stakeholders. Using the information they gathered in Activities 1 and 2, ask students to rate stakeholder's level of influence within the decision. Remind them that not every stakeholder has a voice or equal influence in the decision. Ask students to reflect on the role these particular stakeholders have played in the decision-making process of building the Enbridge Northern Gateway Oil Pipeline.

3. Have students revisit the information gathered from the identification of consequences.

Remind students that all decisions and actions have consequences. Ask students to refer to their Consequences Webs from Activity 2. Have them complete Part 2: Consequences in the Pipeline Decision Statement worksheet by identifying the impact of the consequences upon each of the known stakeholders considering environmental, cultural, and economic factors.

4. Have students create a decision statement.

Explain to students that the product of the decision-making process is a decision statement. A decision statement contains three things: (1) a statement of the decision; (2) evidence that supports the decision; and (3) a statement of who will positively and negatively benefit from the decision considering economic, cultural, and environmental factors. Ask students to complete Part 3: Decision Statement. Remind students in Activity 1, they made a decision from one stakeholder's perspective. This time, they need to consider all stakeholders' perspectives. Collect completed Decision Statement worksheets as a formal evaluation of the lesson.

5. Have students reflect upon the decision-making process.

Ask students to refer to the decision statement they created in Activity 1. Ask them to reflect upon everything they have learned in the lesson. Have them compare what they wrote in Activity 1 with their final decision statement in Activity 3. Ask: *Did your decision statement stay the same or change? If it changed, what influenced your decision? What additional information affected your thinking? If it did not change, are you surprised? Why or why not?*

Modification

For struggling readers, have them annotate the reading by circling new vocabulary and underlining important phrases or sentences. They can also be paired with more confident readers to help process the text.

Modification

This activity works best in small groups. Cooperative learning benefits advanced learners and struggling readers. Assign groups so that advanced students are grouped with struggling readers.

Alternative Assessment

In this activity, students will complete the final decision statement in small groups based on all the information they collected from the previous two activities about the influence of different stakeholders and the consequences of building an oil pipeline on each of the

stakeholders. The Decision Statement worksheet will be collected and assessed using a rubric.

Extending the Learning

- Have students write a persuasive paper to argue for or against building the oil pipeline from the point of view of one stakeholder.
- Have students create an informative campaign (brochure, multimedia presentation, etc.) for or against the construction of the oil pipeline and share it with a relevant stakeholder (by email or mail).
- Have each group take on the role of one stakeholder for this lesson and complete all activities from the stakeholder's perspective. In the final activity, each group could present a persuasive argument to the class about whether they feel the pipeline should be built from their stakeholder's perspective. The audience could complete the rest of the tables in Parts 1 and 2 of the Decision Worksheet as the groups are presenting. The final decision statement would then be the culmination of the activities based on the arguments of each of the stakeholder groups. Have the students write a final draft of the decision statement in the form of a letter responding to the initial student letter asking for their help.

OBJECTIVES

Subjects & Disciplines

Biology

Geography

- Human Geography

Learning Objectives

Students will:

- assess and summarize the impact that a decision about constructing an oil pipeline will have on the stakeholders within British Columbia
- construct a decision statement weighing the tradeoffs of the decision on each stakeholder
- consider human impacts on the marine and terrestrial ecosystems when making their decision statement

Teaching Approach

- Learning-for-use

Teaching Methods

- Cooperative learning
- Discussions
- Reading
- Role playing
- Writing

Skills Summary

This activity targets the following skills:

- 21st Century Student Outcomes
 - Information, Media, and Technology Skills
 - Information Literacy
 - Media Literacy
 - Learning and Innovation Skills
 - Critical Thinking and Problem Solving
- Geographic Skills
 - Acquiring Geographic Information
 - Analyzing Geographic Information
- Science and Engineering Practices
 - Analyzing and interpreting data
 - Asking questions (for science) and defining problems (for engineering)
 - Constructing explanations (for science) and designing solutions (for engineering)
 - Engaging in argument from evidence
 - Obtaining, evaluating, and communicating information

National Standards, Principles, and Practices

NATIONAL GEOGRAPHY STANDARDS

- Standard 11:

The patterns and networks of economic interdependence on Earth's surface

- **Standard 14:**

How human actions modify the physical environment

- **Standard 16:**

The changes that occur in the meaning, use, distribution, and importance of resources

COMMON CORE STATE STANDARDS FOR ENGLISH LANGUAGE ARTS & LITERACY

- **Reading Standards for Informational Text 6-12:**

Key Ideas and Details, RI.9-10.3

- **Reading Standards for Informational Text 6-12:**

Key Ideas and Details, RI.11-12.3

- **Reading Standards for Informational Text 6-12:**

Key Ideas and Details, RI.9-10.1

- **Reading Standards for Informational Text 6-12:**

Key Ideas and Details, RI.9-10.2

- **Reading Standards for Informational Text 6-12:**

Key Ideas and Details, RI.11-12.1

- **Reading Standards for Informational Text 6-12:**

Key Ideas and Details, RI.11-12.2

- **Speaking and Listening Standards 6-12:**

Comprehension and Collaboration, SL.11-12.2

- **Speaking and Listening Standards 6-12:**

Comprehension and Collaboration, SL.11-12.1

- **Writing Standards 6-12:**

Text Types and Purposes, W.11-12.2

- **Writing Standards 6-12:**

Text Types and Purposes, W.9-10.2

NEXT GENERATION SCIENCE STANDARDS

- **HS. Earth's Systems:**

HS-ESS3-4. Evaluate or refine a technological solution that reduces impacts of human activities on natural systems.

- **HS. Ecosystems: Interactions, Energy, and Dynamics:**

HS-LS2-7. Design, evaluate, and refine a solution for reducing the impacts of human activities on the environment and biodiversity.

PREPARATION

What You'll Need

MATERIALS YOU PROVIDE

- Pencils (1 per student)

REQUIRED TECHNOLOGY

- Internet Access: Required
- Tech Setup: 1 computer per learner, 1 computer per small group, Interactive whiteboard, Presentation software

PHYSICAL SPACE

- Classroom
- Computer lab
- Media Center/Library

SETUP

Students will need to be in participant structures that allow for whole class discussion as well as small group work. A space that allows students to move freely between these structures is needed. Students may need to access computers while they are constructing their decision statements with their small groups.

GROUPING

- Heterogeneous grouping

RESOURCES PROVIDED: HANDOUTS & WORKSHEETS

- [Decision Statement](#)
- [Decision Statement Answer Key](#)
- [Decision Statement Rubric](#)

BACKGROUND & VOCABULARY

Background Information

Coastal British Columbia is the most biodiverse area of British Columbia, Canada. The rugged coastline and many islands separate populations resulting in species divergence. The isolation of species allows them to adapt to their local environments in both appearance and behavior. Many unique species of mammals, fish, birds, and plants are located exclusively on the coast of British Columbia. The Great Bear Rainforest stretches almost 403 kilometers (250 miles) along the coast and is one of the world's largest coastal temperate rainforests.

The unique land-sea connection functions as one ecosystem. To protect the rainforest, the sea needs to be healthy. To protect the sea, the rainforest needs to be healthy. When salmon come into the rivers from the sea, they bring vital nutrients with them. The grey wolves and Kermode bears (also called spirit bears) that feed on the salmon bring their carcasses deep into the forest where the nutrients feed the terrestrial ecosystem. Salmon are also important to the culture and economy of the local First Nations communities.

There are several Coastal First Nations communities throughout British Columbia that have a long history with the land and sea. The Gitga'at and Haisla are two such communities. These indigenous cultures have vast traditional ecological knowledge (TEK) of the local area. While their TEK has been informed by generations of experience in the environment, and they understand how human activity can affect local ecosystems, some of these communities are so remote and are experiencing such devastating economic and social hardships (e.g. unemployment and alcoholism) that people are willing to accept jobs or financial incentives to support families or social programming for their communities, even though they know the projects could negatively impact their cultural traditions and historic livelihoods.

A Marine Plan Partnership for the North Pacific Coast (MaPP) was collaboratively developed by the Province of British Columbia and 17 First Nations. This ecosystem-based management plan is intended to support sustainable economic development and a healthy marine environment by using both local and traditional knowledge, with the support of scientific knowledge and expertise. For example, the Haida Gwaii plan includes an economic development goal to focus on managing the growth of tourism and shellfish aquaculture,

developing new fisheries, and supporting new sustainable technology initiatives. These plans also include high environmental standards for all new developments and activities, which will have implications for projects such as the construction of an oil pipeline.

The proposed Enbridge Northern Gateway Pipeline includes twin pipelines. One would export diluted bitumen from the Athabasca oil sands in Alberta to Kitimat, where the marine terminal will be located. Then super tankers would take it to Asian markets. The other pipeline would import natural gas condensate and move it in the other direction.

The Canadian government accepted Enbridge's project proposal in 2014—with 209 issues that need to be addressed. These include consultations with First Nations communities; an environmental review assessment; improving oil spill response, prevention, and recovery systems for the coastline and ocean; and addressing the legal requirements regarding treaty and aboriginal rights.

Prior Knowledge

["Students should know about the controversy around the decision to build an oil pipeline in British Columbia", "Students should be able to identify stakeholders that could be influenced by the decision to build a pipeline in British Columbia", "Students should be able to identify potential cultural, environmental, and economic aspects of this decision", "Students should be able to select evidence from text and media to support their decisions.", "Students should be able to obtain, evaluate, and communicate information about their decision."]

Recommended Prior Activities

- [A Proposal to Build an Oil Pipeline through British Columbia](#)
- [Considering the Consequences of Building on Oil Pipeline through British Columbia](#)

Vocabulary

Term	Part of Speech	Definition
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Term	Part of Speech	Definition
biodiversity	<i>noun</i>	all the different kinds of living organisms within a given area.
consequence	<i>noun</i>	result or outcome of an action or situation.
economy	<i>noun</i>	system of production, distribution, and consumption of goods and services.
ecosystem	<i>noun</i>	community and interactions of living and nonliving things in an area.
energy	<i>noun</i>	capacity to do work.
extract	<i>verb</i>	to pull out.
First Nations	<i>noun</i>	indigenous (Native American) peoples of Canada south of the Arctic.
fuel	<i>noun</i>	material that provides power or energy.
indigenous	<i>adjective</i>	characteristic to or of a specific place.
oil	<i>noun</i>	fossil fuel formed from the remains of marine plants and animals. Also known as petroleum or crude oil.
oil tanker	<i>noun</i>	large ship used for transporting petroleum.
pipeline	<i>noun</i>	series of pipes used to transport liquids or gases over long distances.
rain forest	<i>noun</i>	area of tall, mostly evergreen trees and a high amount of rainfall.
refinery	<i>noun</i>	industrial installation that purifies a substance, in order to make it more useful.
stakeholder	<i>noun</i>	person or organization that has an interest or investment in a place, situation or company.

For Further Exploration

Maps

- [Map of the Proposed Pipeline Route](#)
- [Interactive Map of First Nation Profiles](#)

Websites

- [Pipeline Popularity Dropping in B.C.: Insights West](#)
- [Marine Plan Partnerships for the North Pacific Coast \(MaPP\)](#)
- [Biodiversity of the Central Coast](#)
- [Oil Spills and Vancouver's Stanley Park](#)

